2009, Mathematics - Grade 8

Question 3: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.12

This item does not allow use of a calculator

Hannah’s mean score on four mathematics tests is 92.75. What is the sum of the scores of Hannah’s four tests?

A. 368

B. 370

C. 371

D. 372

2009, Mathematics - Grade 8

Question 5: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.1

This item does not allow use of a calculator

A survey showed that 35 of a newspaper’s readers had access to a computer during the day. What is 35 written as a percent?

A. 75%

B. 60%

C. 35%

D. 30%

2009, Mathematics - Grade 8

Question 6: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.8

This item does not allow use of a calculator

Which of the following is equivalent to the expression below?

(–5 + 6) + 2

A. –5(6 + 2)

B. 2(–5 + 6)

C. –5 + (6 + 2)

D. 2 + (–6 + 5)

2009, Mathematics - Grade 8

Question 7: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.7

This item does not allow use of a calculator

What is the value of the expression below?

4 – 23 • 3

A. –20

B. –14

C. 18

D. 24

2009, Mathematics - Grade 8

Question 8: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.9

This item does not allow use of a calculator

Brian had 45 of a pizza left over from lunch. He divided his leftover pizza equally among 3 friends. The expression below represents the part of the whole pizza that each friend received.

45 ÷ 3

Which of the following expressions is equivalent to 45 ÷ 3 ?

A. 13 ÷ 45

B. 31 • 45

C. 45 ÷ 15

D. 45 • 13

2009, Mathematics - Grade 8

Question 16: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.5

This item allows use of a calculator

At the beginning of the school year, the principal at Adams Middle School equally divided each of the following items among the new teachers:

\* 48 red pens

\* 40 whiteboard markers

\* 16 whiteboard erasers

There were no items remaining.

What was the maximum possible number of new teachers at Adams Middle School at the beginning of the school year?

A. 2

B. 4

C. 8

D. 16

2008, Mathematics - Grade 8

Question 6: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.9

This item does not allow use of a calculator

Which of the following expressions has a value of 16?

A. 

B. 

C. 

D. 

2008, Mathematics - Grade 8

Question 11: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.12

This item does not allow use of a calculator

The Adams Middle School girls’ basketball team won 5 games and lost 3 games. What percent of all of these games did the team lose?

A. 30%

B. 37.5%

C. 60%

D. 62.5%

2008, Mathematics - Grade 8

Question 15: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.8

This item does not allow use of a calculator

Which of the following is equivalent to the expression below?

17(83 — 16)

A. 17(83) — 16

B. (17 —16)(83)

C. 17(83) — 17(16)

D. (17 — 83)(17 — 16)

2008, Mathematics - Grade 8

Question 16: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.7

This item does not allow use of a calculator

What is the value of the expression below?

50 — • 4

A. 34

B. 42

C. 136

D. 184

2008, Mathematics - Grade 8

Question 31: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.5

This item allows use of a calculator

For an assembly, 105 chairs will be set up using the fewest possible rows.

\* There will be the same number of chairs in each row.

\* There will be more than one row of chairs.

What will be the number of chairs in each row?

A. 3

B. 5

C. 21

D. 35

2008, Mathematics - Grade 8

Question 36: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.11

This item allows use of a calculator

Which of the following is more likely to be an estimate than an exact number?

A. the balance due on a telephone bill

B. the population of deer in the state of Massachusetts

C. the change a customer receives when making a purchase

D. the number of cans of tomato soup that a store manager orders

2007, Mathematics - Grade 8

Question 2: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.2

This item does not allow use of a calculator

Between which two consecutive integers on the number line does lie?

A. 3 and 4

B. 5 and 6

C. 11 and 12

D. 22 and 23

2007, Mathematics - Grade 8

Question 4: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.4

This item does not allow use of a calculator

The minimum distance from Neptune to Earth is about 2.68 billion miles.

What is 2.68 billion written in scientific notation?

A. 2.68 × 106

B. 2.68 × 107

C. 2.68 × 109

D. 2.68 × 1010

2007, Mathematics - Grade 8

Reporting Category: Number Sense and Operations

This item does not allow use of a calculator

What is the value of the expression below?

|15| + |–10|

A. –25

B. –5

C. 5

D. 25

2007, Mathematics - Grade 8

Question 11: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.5

This item does not allow use of a calculator

Mr. Lee has one mathematics class with 16 students and one with 24 students. He wants to divide each class into groups with the same number of students in each group.

What is the greatest number of students Mr. Lee can have in each group?

A. 2

B. 4

C. 6

D. 8

2007, Mathematics - Grade 8

Question 12: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.8

This item does not allow use of a calculator

Which of the following is equivalent to the expression below?

3(1.50) + 3(2.50)

A. 3(1.50 + 2.50)

B. 3(1.50)(2.50)

C. 3(1.50 + 3)2.50

D. 3(3) + (1.50)(2.50)

2007, Mathematics - Grade 8

Question 15: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.9

This item does not allow use of a calculator

Which of the following is equivalent to the expression below?

2/3 ÷ 3/4

A. 2/3 ÷ 4/3

B. 2/3 • 4/3

C. 3/2 ÷ 3/4

D. 3/2 • 3/4

2007, Mathematics - Grade 8

Question 18: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.7

This item does not allow use of a calculator

What is the value of the expression below?



A. 32

B. 38

C. 62

D. 98

2007, Mathematics - Grade 8

Question 24: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.3

This item allows use of a calculator

Tuan answered 20 customer service calls in 3 hours. At this rate, how many customer service calls can Tuan answer in 7.5 hours?

A. 45

B. 50

C. 60

D. 80

2007, Mathematics - Grade 8

Question 31: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.3

This item allows use of a calculator

Jaime used 5 1/2 fraction tablespoons of lemonade mix to make 2 quarts of lemonade. At this rate, what is the total number of tablespoons of lemonade mix that Jaime will use to make 3 quarts of lemonade?

A. 6 1/2

B. 8 1/4

C. 10 1/2

D. 16 1/4

2006, Mathematics - Grade 8

Question 1: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.5

This item does not allow use of a calculator

Which of the following is a multiple of 12?

A. 1

B. 3

C. 18

D. 24

2006, Mathematics - Grade 8

Question 4: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.10

This item does not allow use of a calculator

The Enescu family rented 4 movies at a video store. The length, in hours, of each of the movies is shown below.

|  |
| --- |
| 2 1/4 1 3/4 1 1/2 1 3/4 |

What is the total length of the 4 movies?

A. 5 8/14 hours

B. 6 1/4 hours

C. 6 4/6 hours

D. 7 1/4 hours

2006, Mathematics - Grade 8

Question 11: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.3

This item does not allow use of a calculator

When Lisa first started exercising, she could exercise for only 8 minutes. Yesterday, she exercised for 15 minutes. Which of the following proportions could be used to determine the percent increase in Lisa’s exercise time?

A. x/100 = 8/7

B. 8/x = 7/100

C. 100/x = 7/8

D. x/100 = 7/8

2006, Mathematics - Grade 8

Question 13: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.6

This item does not allow use of a calculator

Which of the following expressions is not equivalent to −7?

A. (−4 − 3)

B. −(4 + 3)

C. | −4 − 3 |

D. − | 4 + 3 |

2006, Mathematics - Grade 8

Question 14: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.5

This item does not allow use of a calculator

Which of the following is the prime factorization of 72?

A. 23 • 32

B. 24 • 33

C. 8 • 32

D. 23 • 9

2006, Mathematics - Grade 8

Question 15: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.1

This item does not allow use of a calculator

Sandra bought 2 5/8 pounds of apples. Which of the following shows 2 5/8 written in decimal notation?

A. 2.375

B. 2.580

C. 2.625

D. 2.875

2006, Mathematics - Grade 8

Question 16: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.10

This item does not allow use of a calculator

Martin correctly answered 90% of the questions on a math test that contained exactly 40 questions. How many of the questions did he answer incorrectly?

A. 4

B. 10

C. 44

D. 90

2006, Mathematics - Grade 8

Question 24: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.12

This item allows use of a calculator

At 6:00 p.m., the temperature was −14.8°F. During the night, the temperature decreased by 8.7°F. What was the temperature after the decrease?

A. −23.5°F

B. −22.5°F

C. −6.1°F

D. −5.9°F

2006, Mathematics - Grade 8

Question 27: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.3

This item allows use of a calculator

Mona counted a total of 56 ducks on the pond in Town Park. The ratio of female ducks to male ducks that Mona counted was 5:3. What was the total number of female ducks Mona counted on the pond?

A. 15

B. 19

C. 21

D. 35

2005, Mathematics - Grade 8

Question 10: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.7

This item does not allow use of a calculator

Which of the following is equivalent to the expression below?

(25)(26)

A. 211

B. 230

C. 411

D. 430

2005, Mathematics - Grade 8

Question 23: Multiple-Choice

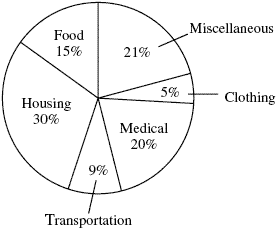
Reporting Category: Number Sense and Operations

Standard: 8.N.10

This item allows use of a calculator

The graph below shows a family’s annual expenses.

**Family Annual Expenses**



If the family’s annual income is $40,000, what is the family’s annual expense for housing?

A. $120

B. $3,000

C. $12,000

D. $30,000

2005, Mathematics - Grade 8

Question 24: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.3

This item allows use of a calculator

In a recent year, there were 1682 students enrolled in Amherst College in Amherst, Massachusetts. The ratio of the number of students to the number of faculty members was approximately 15:2.

Based on this ratio, which of the following is closest to the number of faculty members that year?

A. 310

B. 220

C. 120

D. 110

2005, Mathematics - Grade 8

Question 26: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.1

This item allows use of a calculator

Three friends played a video game. Naomi won the greatest number of points. The chart below shows the results of the game.

Results of Video Game

**Player Number of Points**

Naomi 4,500

Darla 2,000

Isaac 3,500

What fraction of the total number of points were won by Naomi?

A. 4/5.

B. 9/20.

C. 9/11.

D. 11/20.

2005, Mathematics - Grade 8

Question 35: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.5

This item allows use of a calculator

On Monday, Chris and Ravi went to the gym. Chris plans to return every second day. Ravi plans to return every fourth day. If they follow their plans, what is the next day of the week they will both be at the gym on the same day?

A. Wednesday

B. Thursday

C. Friday

D. Saturday

2005, Mathematics - Grade 8

Question 36: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.3

This item allows use of a calculator

The chart below shows the cost of the four different-sized boxes of chicken nuggets that are available at The Chicken Shack.

**Box Sizes and Costs of Chicken Nuggets**

**Box Size Number of Nuggets in Box Cost of Box**

**(dollars)**

Kid 5 1.29

Small 9 2.09

Medium 15 3.19

Large 22 4.99

Which of the following box sizes has the least cost per nugget?

A. Kid

B. Small

C. Medium

D. Large

2004, Mathematics - Grade 8

Question 5: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.2

This item does not allow use of a calculator

A part of the real number line is shown below. part of the real number line



Which letter best represents the location of ?

A. Q C. S

B. R D. T

2004, Mathematics - Grade 8

Question 6: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.8

This item does not allow use of a calculator

What value of a makes the equation below true?

−12 + (−3a) = 0

A. 5

B. 4

C. −4

D. −5

2004, Mathematics - Grade 8

Question 10: Multiple-Choice

Reporting Category: Number Sense and Operations

This item does not allow use of a calculator

Erin determined the masses of some samples for her science project. The mass of each sample is listed below.

**Sample Mass (grams)**

1 17

2 16.7

3 17.6

4 16.67

Which of the following correctly lists the samples in order from the least mass to the greatest mass?

A. 1, 2, 3, 4

B. 2, 3, 4, 1

C. 2, 4, 1, 3

D. 4, 2, 1, 3

2004, Mathematics - Grade 8

Question 12: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.5

This item does not allow use of a calculator

What is the prime factorization of 300?

A. 3 • 102

B. 2 • 52 • 6

C. 22 • 3 • 25

D. 22 • 3 • 52

2004, Mathematics - Grade 8

Question 26: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.4

This item allows use of a calculator

Pittsfield and Provincetown are approximately 258,000 meters apart. Which of the following shows this number in scientific notation?

A. 258 × 103

B. 258 × 10−3

C. 2.58 × 105

D. 2.58 × 10−5

2004, Mathematics - Grade 8

Question 31: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.3

This item allows use of a calculator

A sugar cookie recipe calls for 3½ cups of sugar to make 6 dozen cookies. Based on the recipe, how many cups of sugar must be used to make 20 dozen sugar cookies?

A. 9 cups

B. 11 cups

C. 61 cups

D. 70 cups

2004, Mathematics - Grade 8

Question 36: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.12

This item allows use of a calculator

Mr. Lowery has 8¾ pounds of ground beef that he will use to make hamburgers for a picnic. What is the maximum number of quarter-pound hamburgers he can make?

A. 9

B. 17

C. 35

D. 36

2004, Mathematics - Grade 8

Question 34: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.10

This item allows use of a calculator

A group of 36 people from the Nantucket Recreation Center plans to purchase tickets for a cruise to Bermuda. The standard fare for an individual ticket is shown below.

**Cruise Price**

|  |  |
| --- | --- |
|  | Standard Fare |
| Individual Ticket Price | $1200 |

The group is informed that, because of the size of the group, the standard fare will be reduced by 30%.

With the discount of 30%, how much does each member of the Nantucket Recreation Center have to pay for a cruise ticket?

A. $360

B. $432

C. $768

D. $840

2004, Mathematics - Grade 8

Question 38: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.1

This item allows use of a calculator

The chart below shows basketball shots attempted and made by four players on a team.

Basketball Shots

**Name Shots Attempted Shots Made**

Kenzo 10 6

Chris 12 7

Kyle 5 4

Ramon 12 3

Which of the following lists the players in order from the highest to the lowest percentage of shots made out of shots attempted?

A. Kyle, Kenzo, Chris, Ramon

B. Chris, Kenzo, Kyle, Ramon

C. Chris, Kyle, Kenzo, Ramon

D. Kyle, Chris, Kenzo, Ramon

2003, Mathematics - Grade 8

Question 2: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.8

This item does not allow use of a calculator

Which of the following statements is false?

A. (−12)(−12)(−12) = 3(−12)

B. 12(4 − 1) = 12(4) − 12(1)

C. 12 + (4 − 1) = (12 + 4) − 1

D. −12 + 12 = 12 + (−12)

2003, Mathematics - Grade 8

Question 14: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.4

This item does not allow use of a calculator

For what value of n is the equation below true?

363,600,000 = 3.636 x 10n

A. n = 3

B. n = 5

C. n = 8

D. n = 10

2003, Mathematics - Grade 8

Question 24: Multiple-Choice

Reporting Category: Number Sense and Operations

Standard: 8.N.10

This item allows use of a calculator

The difference between two temperature readings was 7 degrees. Which of the following could be the two temperature readings?

A. −7° and 1°

B. −4° and 3°

C. −1° and 7°

D. −5° and 12°